

should not be construed as limiting the appropriate scope of protection provided under the doctrine of equivalents.

2. Claims 12-18 are also rejected under 35 U.S.C. § 103(a) as being unpatentable over Gibson et al. in view of Sanders.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See e.g., MPEP §2142.

The teaching of a medium containing multiple antibiotics is by no means an obvious invention. Different antibiotics interact with each other and with other analytes in the medium to exert differing and often unpredictable effects on cells growing in the medium. In some cases, these interactions will confer increased resistance to certain antibiotics on the part of the target organism. In other cases, the analytes may combine to confer increased susceptibility. Organisms which are susceptible to a particular antibiotic in some media may not be susceptible in others. Small changes in medium components can

effect substantial changes in resistance patterns. Therefore, the elucidation of a medium containing multiple antibiotics which selects for multiple organisms cannot appropriately be said to be obvious.

Gibson et al. ("Gibson") disclose a method of determining the susceptibility of microorganisms to antibiotics involving the introduction of sample specimen into a selective culture medium which favors a specific microorganism which is sustained by the medium and changes the optical characteristics of the medium. The Gibson disclosure is directed toward a method of detecting a single, particular microorganism. Gibson states "All of the growth wells in the cassette contain the same selective culture medium which favors a specific microorganism in the sense that only that microorganism will be sustained by the culture medium..." (Col. 2, lines 57-60).

Conversely, the present invention provides a method of detecting the great majority of members of a particular class of microorganisms which are associated with a particular disease state. The method is capable of detecting virtually all of a variety of microorganisms which may be responsible for the disease state, for example, any of the group of organisms which may be the cause of a urinary tract infection. Gibson does not disclose this method, nor is his invention capable of producing such a result. Gibson does not enable the practice of any

method for detecting the presence of urinary pathogens in a biological sample. Nor does Gibson enable the skilled person to detect the presence of any of a group of genera of microbes which may be associated with a particular disease state. In fact, Gibson specifically states "...the culture medium undergoes an optical change as a result of the metabolic action of the specific microorganism..." (Col. 2, lines 65-67) and "Only the specific microorganism will live and propagate in the culture medium..." (Col. 3, lines 2-3). Furthermore, there is no media available in the art which is capable of selecting for a majority of the organisms responsible for a particular disease state.

Sanders discloses a method of determining antibiotic sensitivity which relies on the presence of certain vital enzymes which are common to all bacteria. A sample specimen is incubated with a substrate for one of the vital enzymes and an antibiotic whose effectiveness against the microbe is sought to be determined. If the substrate for the vital enzyme is acted upon to produce a detectable product, microbe growth is occurring and the microbe is not susceptible to that antibiotic. Therefore, Sanders discloses the known proposition that there exist particular enzymes which are common to virtually all bacterial species. Unlike the present invention, the method of Sanders requires a time-consuming pre-growth step in order to

generate a sample of bacteria whose susceptibility is sought to be determined. Gibson does not suggest any motivation to make the combination with Sanders. Nevertheless, even the inappropriate combination of Gibson and Sanders does not teach a method having all of the claim limitations of the present invention, as explained above. Therefore, a *prima facie* case for obviousness cannot be properly made. Accordingly, it is respectfully requested that the rejection be withdrawn.

3. Claims 12-18 are rejected under 35 U.S.C § 103(a) as being unpatentable over Gibson in view of Sanders as applied to claims 12-18 above, and further in view of Brocco.

This rejection is respectfully traversed. Claims 12-18 are cancelled. Claims 20-28 are added.

Brocco discloses a method for assaying microorganism growth or inhibition of growth in the presence of an effective amount of antibiotic, as a function of pH changes in the culture medium. The method requires that the bacteria be pre-grown in a culture medium. Brocco states "[b]acteria are resuspended in a culture medium." (page 5, lines 1-2). Furthermore, Brocco does not disclose any selective growth media. The import of Brocco is the use of pH changes to detect microbe growth which represents a change in the principle of operation of the present invention and the cited art which uses optical measurements to evaluate bacterial growth. Further still, *Staphylococcus* and *Streptococcus* are frequently encountered as sample contaminants

which may interfere with the interpretation of assay results in the present invention. The media of the present invention selects against these genera of bacteria while the medium of Brocco selects for them. Therefore, even the inappropriate combination of Brocco with Gibson and Sanders does not render the present claims obvious.

In view of the above comments, withdrawal of the rejection is respectfully requested.

Conclusion

In view of the above, the Applicants submit that the claims are in condition for allowance. The Applicants respectfully request that they be allowed and passed to issue.

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Respectfully submitted,
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